JAN

Access DB# 134697

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: R GITOMER Examiner # : _____ Date: 10/7/04
Art Unit: 1651 Phone Number 30 _____ Serial Number: 10/761,590
Mail Box and Bldg/Room Location: 3065/3671 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc. if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): _____

_____

Earliest Priority Filing Date: _____

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

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Searcher: Noble
Searcher Phone #: _____
Searcher Location: _____
Date Searcher Picked Up: _____
Date Completed: 10/8/04
Searcher Prep & Review Time: 30
Clerical Prep Time: _____
Online Time: 50

Type of Search

NA Sequence (#) _____
AA Sequence (#) _____
Structure (#) _____
Bibliographic ✓
Litigation _____
Fulltext _____
Patent Family _____
Other _____

Vendors and cost where applicable

STN 363
Dialog _____
Questel/Orbit _____
Dr.Link _____
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Sequence Systems _____
WWW/Internet _____
Other (specify) _____

STIC Search Report
Biotech-Chem Library

STIC Database Tracking Number: 134697

TO: Ralph J Gitomer **Location: 3d65 / 3e71** **Art Unit: 1651** **Friday, October 08, 2004** **Case Serial Number: 10/761590**	**From: Noble Jarrell** **Location: Biotech-Chem Library** **Rem 1B71** **Phone: 272-2556** **Noble.jarrell@uspto.gov**

Search Notes

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     (FILE 'HOME' ENTERED AT 08:08:43 ON 08 OCT 2004)

     FILE 'HCAPLUS' ENTERED AT 08:44:35 ON 08 OCT 2004
L1            1 US20040152151/PN

     FILE 'REGISTRY' ENTERED AT 08:44:47 ON 08 OCT 2004

     FILE 'HCAPLUS' ENTERED AT 08:44:50 ON 08 OCT 2004
L2              TRA L1 1- RN :       14 TERMS

     FILE 'REGISTRY' ENTERED AT 08:44:50 ON 08 OCT 2004
L3           14 SEA L2

     FILE 'WPIX' ENTERED AT 08:44:54 ON 08 OCT 2004
L4            1 US20040152151/PN

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FILE 'HCAPLUS' ENTERED AT 08:45:19 ON 08 OCT 2004
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FILE COVERS 1907 - 8 Oct 2004  VOL 141 ISS 16
FILE LAST UPDATED: 7 Oct 2004  (20041007/ED)

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.


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L1   ANSWER 1 OF 1  HCAPLUS  COPYRIGHT 2004 ACS on STN
AN   2002:185025  HCAPLUS
DN   136:251844
ED   Entered STN:  15 Mar 2002
TI   Polyhydroxyalkanoate levels as an indicator of bioreactor health
IN   Dragotta, Dominic A.; Nagarajan, Vasantha; Thomas, Stuart M.
PA   E. I. Du Pont de Nemours & Co., USA
SO   PCT Int. Appl., 39 pp.
     CODEN: PIXXD2
DT   Patent
LA   English
IC   ICM  C02F003-12
CC   60-1 (Waste Treatment and Disposal)
     Section cross-reference(s): 10
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.         DATE
     --------------      ----   --------    -------------------     --------
PI   WO 2002020416       A2     20020314    WO 2001-US27456         20010904
     WO 2002020416       A3     20020613
         W:  CA, JP, US
         RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
             PT, SE, TR
     US 2002052016       A1     20020502    US 2001-940298          20010828
     US 6737263          B2     20040518
     EP 1337475          A2     20030827    EP 2001-970633          20010904
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
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     JP 2004514545       T2     20040520    JP 2002-525046          20010904
     US 2004152151       A1     20040805    US 2004-761590          20040121 <--
PRAI US 2000-231025P     P      20000908
     US 2001-940298      A3     20010828
     WO 2001-US27456     W      20010904
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CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2002020416	ICM	C02F003-12
JP 2004514545	FTERM	4D028/AC03; 4D028/BB02; 4D028/BB07; 4D028/CA00; 4D028/CB03; 4D028/CC00; 4D040/BB42; 4D040/BB91; 4D040/BB93; 4D040/DD03; 4D040/DD14; 4D040/DD31

AB A method has been developed for monitoring and controlling the biocatalytic efficiency of a wastewater treatment process comprising: (a) providing an activated sludge environment; (b) sampling wastewater from anaerobic, anoxic and/or aerobic stages of the treatment process; (c) measuring the concentration of polyhydroxyalkanoates or glycogen present in the sample to determine the status of a selected sample characteristic; and (d) adjusting the feed nutrient in the activated sludge environment depending on the status of the selected sample wherein the biocatalytic efficiency of a wastewater treatment process is controlled. The activated sludge environment provided comprises: (i) a carbon influx; (ii) cultures of autotrophic, heterotrophic and facultative microorganisms; (iii) a feed nutrient; and (iv) an end electron acceptor. In general, levels of PHA in excess of about 15 to about 20 dry weight of the biomass is an indication that the biocatalytic efficiency of the wastewater treatment process is impaired.

ST monitoring control biocatalytic efficiency activated sludge wastewater treatment; polyhydroxyalkanoate monitoring activated sludge wastewater treatment bioreactor

IT Wastewater treatment
(activated-sludge process, apparatus, performance of; method for monitoring and controlling biocatalytic efficiency of)

IT Wastewater treatment
(activated-sludge process; method for monitoring and controlling biocatalytic efficiency of)

IT Proteobacteria
(alpha, beta, and gamma; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process employing Proteobacteria)

IT Alcohols, biological studies
Amines, biological studies
Amino acids, biological studies
Carbohydrates, biological studies
Proteins
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(carbon source; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)

IT Denitrification
(efficiency of; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)

IT Polyesters, occurrence
RL: OCU (Occurrence, unclassified); OCCU (Occurrence)
(hydroxycarboxylic acid-based; use in method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)

IT Acinetobacter
Alcaligenes
Azoarcus
Burkholderia
Paracoccus
Pseudomonas
Rhodococcus
Sphingomonas
(method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process employing Proteobacteria)

IT Acids, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(organic, carbon source; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)

IT 1309-37-1, Ferric oxide, biological studies 7782-44-7, Oxygen, biological studies 10024-97-2, Nitrous oxide, biological studies 14797-65-0, Nitrite, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(end electron acceptor; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)

IT 14797-55-8, Nitrate, biological studies 14808-79-8, Sulfate, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(feed nutrient and end electron acceptor; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)
IT 57-13-6, Urea, biological studies 7664-41-7, Ammonia, biological studies 14265-44-2, Phosphate, biological studies 18496-25-8, Sulfide
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(feed nutrient; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)
IT 124-38-9, Carbon dioxide, processes 1320-61-2, Hydroxybutyrate 9005-79-2, Glycogen, processes 50853-48-0, Pentanoic acid, hydroxy-
RL: BCP (Biochemical process); FMU (Formation, unclassified); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)

=> b reg
FILE 'REGISTRY' ENTERED AT 08:45:29 ON 08 OCT 2004
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Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 6 OCT 2004 HIGHEST RN 757927-15-4
DICTIONARY FILE UPDATES: 6 OCT 2004 HIGHEST RN 757927-15-4

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

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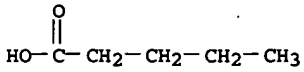
L3 ANSWER 1 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
RN **50853-48-0** REGISTRY
CN Pentanoic acid, hydroxy- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Valeric acid, hydroxy- (7CI)
OTHER NAMES:
CN Hydroxypentanoic acid
CN Hydroxyvaleric acid
MF C5 H10 O3
CI IDS, COM
LC STN Files: AGRICOLA, BIOBUSINESS, BIOSIS, CA, CAOLD, CAPLUS, PIRA, TOXCENTER, USPAT2, USPATFULL
DT.CA CAplus document type: Dissertation; Journal; Patent
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.P Roles for non-specific derivatives from patents: BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation); PROC (Process); NORL (No role in record)



D1—OH

50 REFERENCES IN FILE CA (1907 TO DATE)
18 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
50 REFERENCES IN FILE CAPLUS (1907 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 2 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
RN **18496-25-8** REGISTRY
CN Sulfide (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Sulfide (S2-)
CN Sulfide ion
CN Sulfide ion (S2-)
CN Sulfide ion(2-)
CN Sulfide(2-)
CN Sulfur(2-)
CN Sulfur, ion (S2-)
CN Sulphide
MF S
LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMLIST, CIN, CSNB, EMBASE, IFICDB, IFIPAT, IFIUDB, NIOSHTIC, PIRA, PROMT, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VTB
DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
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5157 REFERENCES IN FILE CA (1907 TO DATE)
173 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
5161 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 3 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
RN **14808-79-8** REGISTRY
CN Sulfate (7CI, 8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Sulfate (ion 2-)
CN Sulfate anion
CN Sulfate anion(2-)
CN Sulfate dianion
CN Sulfate ion
CN Sulfate ion (SO42-)
CN Sulfate(2-)
CN Sulfuric acid, ion(2-)
CN Sulphate
FS 3D CONCORD
MF O4 S
CI COM
LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX,

CHEMLIST, CIN, CSCHEM, CSNB, DETHERM*, EMBASE, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, MSDS-OHS, NIOSHTIC, PIRA, PROMT, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VTB
(*File contains numerically searchable property data)
DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
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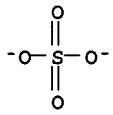

25688 REFERENCES IN FILE CA (1907 TO DATE)
145 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
25710 REFERENCES IN FILE CAPLUS (1907 TO DATE)
3 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 4 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
RN **14797-65-0** REGISTRY
CN Nitrite (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Nitrite (NO2-)
CN Nitrite anion
CN Nitrite ion
CN Nitrite ion (NO2-)
CN Nitrite ion(1-)
CN Nitrite(1-)
CN Nitrogen dioxide ion(1-)
CN Nitrogen dioxide(1-)
CN Nitrogen peroxide ion(1-)
CN Nitrous acid, ion(1-)
FS 3D CONCORD
DR 12183-96-9, 114466-53-4
MF N O2
CI COM
LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DRUGU, EMBASE, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, NIOSHTIC, PIRA, PROMT, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL
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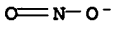
(Reactant or reagent); USES (Uses)



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15040 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 5 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
RN **14797-55-8** REGISTRY
CN Nitrate (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Nitrate (NO3-)
CN Nitrate ion
CN Nitrate ion (NO3-)
CN Nitrate ion(1-)
CN Nitrate(1-)
CN Nitrato
CN Nitric acid, ion(1-)
FS 3D CONCORD
DR 23746-18-1, 73394-83-9, 34236-35-6
MF N O3
CI COM
LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DRUGU, EMBASE, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, NIOSHTIC, PIRA, PROMT, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB
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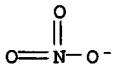

36601 REFERENCES IN FILE CA (1907 TO DATE)
102 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
36623 REFERENCES IN FILE CAPLUS (1907 TO DATE)
3 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 6 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
RN **14265-44-2** REGISTRY
CN Phosphate (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Orthophosphate
CN Orthophosphate (PO43-)
CN Orthophosphate(3-)
CN Phosphate (PO43-)
CN Phosphate anion(3-)
CN Phosphate ion (PO43-)
CN Phosphate ion(3-)
CN Phosphate trianion
CN Phosphate(3-)
CN Phosphoric acid, ion(3-)
FS 3D CONCORD

DR 264888-19-9
MF O4 P
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DRUGU, EMBASE, GMELIN*, IFICDB, IFIPAT, IFIUDB, IPA, NIOSHTIC, PIRA, PROMT, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)
Other Sources: NDSL**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)
DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
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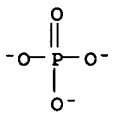

36474 REFERENCES IN FILE CA (1907 TO DATE)
372 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
36498 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 7 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
RN **10024-97-2** REGISTRY
CN Nitrogen oxide (N2O) (7CI, 8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Dinitrogen monoxide
CN Dinitrogen oxide
CN Dinitrogen oxide (N2O)
CN Factitious air
CN Hyponitrous acid anhydride
CN Laughing gas
CN Nitrous oxide
FS 3D CONCORD
DR 126386-65-0, 130835-71-1, 129451-49-6, 147527-07-9, 175876-44-5
MF N2 O
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)
DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.P Roles for non-specific derivatives from patents: PREP (Preparation); PROC (Process); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

24747 REFERENCES IN FILE CA (1907 TO DATE)
63 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
24763 REFERENCES IN FILE CAPLUS (1907 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 8 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
RN 9005-79-2 REGISTRY
CN Glycogen (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Animal starch
CN Liver starch
CN Lyoglycogen
CN Phytoglycogen
MF Unspecified
CI PMS, COM, MAN
PCT Manual registration
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMLIST, CIN, CSCHEM, DDFU, DRUGU, EMBASE, IFICDB, IFIPAT, IFIUDB, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PIRA, PROMT, RTECS*, TOXCENTER, ULIDAT, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)
DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
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*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
29455 REFERENCES IN FILE CA (1907 TO DATE)
107 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
29465 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 9 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
RN 7782-44-7 REGISTRY
CN Oxygen (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Dioxygen
CN Molecular oxygen
CN Oxygen molecule
FS 3D CONCORD
DR 1338-93-8, 14797-70-7, 80217-98-7, 80937-33-3
MF O2
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO,

CA, CABA, CANCERLIT, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT, PS, RTECS*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)
DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
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O=O

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

350063 REFERENCES IN FILE CA (1907 TO DATE)
28110 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
350305 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 10 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
RN **7664-41-7** REGISTRY
CN Ammonia (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN 21: PN: US20040009933 PAGE: 16 claimed sequence
CN Ammonia gas
CN Ammonia-14N
CN Nitro-Sil
CN R 717
CN Refrigerent R717
CN Spirit of Hartshorn
FS 3D CONCORD
DR 8007-57-6, 208990-07-2, 214478-05-4, 558443-52-0
MF H3 N
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)
DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
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PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
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NH_3

131648 REFERENCES IN FILE CA (1907 TO DATE)
1717 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
131719 REFERENCES IN FILE CAPLUS (1907 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 11 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
RN **1320-61-2** REGISTRY
CN Butanoic acid, hydroxy-, ion(1-) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Butyric acid, hydroxy-, ion(1-) (8CI)
OTHER NAMES:
CN Hydroxybutyrate
MF C4 H7 O3
CI IDS
LC STN Files: ADISNEWS, AGRICOLA, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CAPLUS, CEN, CIN, EMBASE, NIOSHTIC, PIRA, PROMT, TOXCENTER, USPAT2, USPATFULL
DT.CA CAplus document type: Conference; Journal; Patent
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
RLD.P Roles for non-specific derivatives from patents: BIOL (Biological study); PREP (Preparation); USES (Uses)
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PROC (Process); RACT (Reactant or reagent); USES (Uses)
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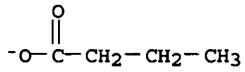

D1—OH

57 REFERENCES IN FILE CA (1907 TO DATE)
4 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
57 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 12 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
RN **1309-37-1** REGISTRY
CN Iron oxide (Fe2O3) (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN .alpha.-Ferric oxide
CN .alpha.-Iron oxide
CN .gamma.-Ferric oxide
CN .gamma.-Iron oxide (Fe2O3)
CN .gamma.-MYD
CN 100ED
CN 1030AC1005
CN 120ED
CN 130ED
CN 140ED
CN 140M
CN 160M
CN 40G
CN Abdoscan
CN APC 944

CN AQI 2199
CN Ariabel Sienna 300406
CN Auvicorb BL
CN B 4792
CN Bayer S 11
CN Bayferrox 105M
CN Bayferrox 110
CN Bayferrox 110M
CN Bayferrox 111
CN Bayferrox 120
CN Bayferrox 120M
CN Bayferrox 120N
CN Bayferrox 120NM
CN Bayferrox 130
CN Bayferrox 130B
CN Bayferrox 130BM
CN Bayferrox 130M
CN Bayferrox 140
CN Bayferrox 140M
CN Bayferrox 160M
CN Bayferrox 180M
CN Bayferrox 225
CN Bayferrox 720N
CN Bayferrox 8220
CN Bayferrox 910
CN Bayferrox BF 110
CN Bayferrox Red 105M
CN Bayferrox Red 130M
CN Bayferrox Red 140M
CN Bayferrox Red 160M
CN Bayferrox Red 180M
CN Bayoxide E 8710
CN Bengara 217
CN Bengara CH 2-223
CN Bengara CM 25P
ADDITIONAL NAMES NOT AVAILABLE IN THIS FORMAT - Use FCN, FIDE, or ALL for DISPLAY
DR 448923-71-5, 12000-93-0, 12002-17-4, 12227-87-1, 8011-97-0, 8049-50-1, 177715-24-1, 1343-09-5, 129131-59-5, 135507-53-8, 60880-86-6, 65637-71-0, 147229-90-1, 147229-91-2, 90452-21-4, 110736-41-9, 160186-10-7, 185464-44-2, 188357-78-0, 220787-06-4, 253310-52-0
MF Fe2 O3
CI COM, MAN
LC STN Files: AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, HSDB*, IFICDB, IFIPAT, IFIUDB, IMSCOSEARCH, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)
DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

52973 REFERENCES IN FILE CA (1907 TO DATE)
587 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
53009 REFERENCES IN FILE CAPLUS (1907 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 13 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
RN **124-38-9** REGISTRY
CN Carbon dioxide (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Carbon oxide (CO2)
CN Carbon-12 dioxide
CN Carbon-12C dioxide-16O2
CN Carbonic acid anhydride
CN Carbonic acid gas
CN Carbonic anhydride
CN Dry ice
CN Khladon 744
CN R 744
FS 3D CONCORD
DR 18923-20-1
MF C O2
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT, PS, RTECS*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)
DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
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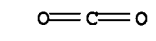

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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694 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
180959 REFERENCES IN FILE CAPLUS (1907 TO DATE)
21 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 14 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
RN **57-13-6** REGISTRY
CN Urea (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Aquacare
CN Aquadrate
CN B-I-K
CN Basodexan

CN Benural 70
CN Carbamide
CN Carbamimidic acid
CN Carbonyl diamide
CN Carmol 40
CN Elaqua XX
CN Eucerin 10% Urea Lotion
CN Hyanit
CN Isourea
CN Keratinamin
CN Keratinamin Kowa
CN NSC 34375
CN Nutraplus
CN Onychomal
CN Optigen 1200
CN Pastaron
CN Pastaron 10
CN Pastaron 20
CN Pastaron 20 soft
CN Pastaron soft
CN Pseudourea
CN Rubinol ST 010
CN UR
CN Urea perhydrate
CN Ureaphil
CN Ureophil
CN Urepeal
CN Urepeal L
CN Urepearl
CN Urevert
CN Varioform II
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MF C H4 N2 O
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IMSCOSEARCH, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PHAR, PIRA, PROMT, PS, RTECS*, SPECINFO, SYNTHLINE, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)
DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report
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RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
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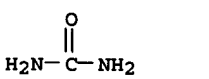

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          73822 REFERENCES IN FILE CAPLUS (1907 TO DATE)
              9 REFERENCES IN FILE CAOLD (PRIOR TO 1967)


=> b wpix

FILE 'WPIX' ENTERED AT 08:45:38 ON 08 OCT 2004
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FILE LAST UPDATED:          6 OCT 2004      <20041006/UP>
MOST RECENT DERWENT UPDATE:     200464        <200464/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

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    PLEASE VISIT:
 http://www.stn-international.de/training_center/patents/stn_guide.pdf <<<

>>> FOR DETAILS OF THE PATENTS COVERED IN CURRENT UPDATES, SEE
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>>> FOR INFORMATION ON ALL DERWENT WORLD PATENTS INDEX USER
    GUIDES, PLEASE VISIT:
    http://thomsonderwent.com/support/userguides/               <<<

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    DOCUMENTATION NOW AVAILABLE IN DERWENT WORLD PATENTS INDEX
    FIRST VIEW - FILE WPIFV.
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>>> NEW DISPLAY FORMAT HITSTR ADDED ALLOWING DISPLAY OF
    HIT STRUCTURES WITHIN THE BIBLIOGRAPHIC DOCUMENT  <<<

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AN   2002-415718 [44]   WPIX
DNC  C2002-117314
TI   Monitoring and controlling biocatalytic efficiency of wastewater treatment
     involves measuring concentration of internal storage molecule in sample
     wastewater to determine status of selected sample characteristics.
DC   A97 D15 D16 J04
IN   DRAGOTTA, D A; NAGARAJAN, V; THOMAS, S M
PA   (DRAG-I) DRAGOTTA D A; (NAGA-I) NAGARAJAN V; (THOM-I) THOMAS S M; (DUPO)
     DU PONT DE NEMOURS & CO E I
CYC  23
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         W: CA JP US
     US 2002052016   A1 20020502 (200244)             C12Q001-04
     EP 1337475      A2 20030827 (200357)  EN         C02F003-12
         R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR
     US 6737263      B2 20040518 (200433)             B09B003-00
     JP 2004514545   W  20040520 (200434)       68    C02F003-34
     US 2004152151   A1 20040805 (200452)             C12Q001-04     <--
ADT  WO 2002020416 A2 WO 2001-US27456 20010904; US 2002052016 A1 Provisional US
     2000-231025P 20000908, US 2001-940298 20010828; EP 1337475 A2 EP
     2001-970633 20010904, WO 2001-US27456 20010904; US 6737263 B2 Provisional
     US 2000-231025P 20000908, US 2001-940298 20010828; JP 2004514545 W WO
     2001-US27456 20010904, JP 2002-525046 20010904; US 2004152151 A1
     Provisional US 2000-231025P 20000908, Div ex US 2001-940298 20010828, US
     2004-761590 20040121
FDT  EP 1337475 A2 Based on WO 2002020416; JP 2004514545 W Based on WO
     2002020416; US 2004152151 A1 Div ex US 6737263
PRAI US 2000-231025P      20000908; US 2001-940298       20010828;
     US 2004-761590       20040121
IC   ICM  B09B003-00; C02F003-12; C02F003-34; C12Q001-04
     ICS  C02F003-30
AB   WO 200220416 A UPAB: 20020711
     NOVELTY - Monitoring and controlling the biocatalytic efficiency of
     wastewater treatment involves sampling wastewater from anaerobic, anoxic
     and/or aerobic stages of treatment processes. The concentration of an
     internal storage molecule in the sample is measured to determine the
     status of selected sample characteristics. The feed nutrient in an
     activated sludge is adjusted depending on the status.
```

DETAILED DESCRIPTION - The activated sludge contains a carbon influx, cultures of autotrophic, heterotrophic, and facultative microorganisms, a feed nutrient and an end electron acceptor.

An INDEPENDENT CLAIM is also included for method for maintaining a viable culture in activated sludge in the absence of carbon influx.

USE - For monitoring and controlling the biocatalytic efficiency of a waste water treatment process, in the production of polyhydroxyalkonoate (PHA) with bioreactor health and biocatalytic efficiency.

ADVANTAGE - Monitoring bioreactor health and maintaining viable cultures within the bioreactor are performed reliably, by making the correlation between the production of internal storage molecule and denitrification rate as a control strategy. The PHA level in the bacteria of the activated sludge can be easily measured and controlled by the nutrients in the bioreactor. In general, levels of PHA in excess of 15-20% dry weight of the biomass is an indication that the biocatalytic efficiency of the wastewater treatment process is impaired.

Dwg.0/7

FS CPI
FA AB
MC CPI: A12-W11J; D04-A01H; J04-C03

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FILE 'HOME' ENTERED AT 08:45:44 ON 08 OCT 2004

=>

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=> b reg
FILE 'REGISTRY' ENTERED AT 09:13:01 ON 08 OCT 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2004 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES:    6 OCT 2004  HIGHEST RN 757927-15-4
DICTIONARY FILE UPDATES:   6 OCT 2004  HIGHEST RN 757927-15-4

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

Crossover limits have been increased.  See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

=> d ide l17 tot

L17  ANSWER 1 OF 15  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   61880-25-9  REGISTRY
CN   Nitrate(2-), tri(oxo-17O)- (9CI)  (CA INDEX NAME)
MF   N O3
CI   RIS
LC   STN Files:   CA, CAPLUS
DT.CA  CAplus document type:  Journal
RL.NP  Roles from non-patents:  PRP (Properties)
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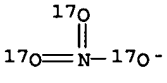

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              1 REFERENCES IN FILE CA (1907 TO DATE)
              1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17  ANSWER 2 OF 15  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   60091-12-5  REGISTRY
CN   Nitrate-13N (9CI)  (CA INDEX NAME)
OTHER NAMES:
CN   Nitrate (13NO31-)
MF   N O3
LC   STN Files:   CA, CAPLUS, GMELIN*, TOXCENTER, USPATFULL
         (*File contains numerically searchable property data)
DT.CA  CAplus document type:  Conference; Journal; Patent; Report
RL.P   Roles from patents:  PREP (Preparation)
RL.NP  Roles from non-patents:  ANST (Analytical study); BIOL (Biological
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       (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
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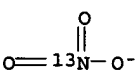

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             32 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17  ANSWER 3 OF 15  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   59700-51-5  REGISTRY
CN   Nitrate(3-), trioxo- (9CI)  (CA INDEX NAME)
OTHER NAMES:
CN   Orthonitrite
FS   3D CONCORD
MF   N O3
LC   STN Files:   CA, CAPLUS, GMELIN*
         (*File contains numerically searchable property data)
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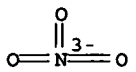
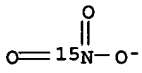
RL.NP Roles from non-patents: RACT (Reactant or reagent)



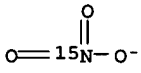
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17 ANSWER 4 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
RN 36012-21-2 REGISTRY
CN **Nitrate-15N-18O2 (9CI)** (CA INDEX NAME)
OTHER NAMES:
CN **Nitrate (15NO18O21-)**
MF **N O3**
LC STN Files: CA, CAPLUS
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: PRP (Properties)
IL 2O-18



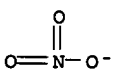
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17 ANSWER 5 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
RN 36012-20-1 REGISTRY
CN **Nitrate-15N-18O (9CI)** (CA INDEX NAME)
OTHER NAMES:
CN **Nitrate (15NO218O1-)**
MF **N O3**
LC STN Files: CA, CAPLUS
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: PRP (Properties)
IL O-18



1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

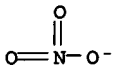
L17 ANSWER 6 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
RN 36011-83-3 REGISTRY
CN **Nitrate, labeled with oxygen-18 (9CI)** (CA INDEX NAME)
FS 3D CONCORD
MF **N O3**
LC STN Files: CA, CAPLUS
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: PRP (Properties)
IL O-18



1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

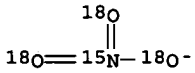
L17 ANSWER 7 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
RN 36011-81-1 REGISTRY
CN **Nitrate-18O2 (9CI)** (CA INDEX NAME)
FS 3D CONCORD
MF **N O3**

LC STN Files: CA, CAPLUS
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: PRP (Properties)
IL 20-18



1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17 ANSWER 8 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
RN 36011-80-0 REGISTRY
CN **Nitrate-15N-18O3 (9CI)** (CA INDEX NAME)
MF **N O3**
LC STN Files: CA, CAPLUS
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: PRP (Properties)



2 REFERENCES IN FILE CA (1907 TO DATE)
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17 ANSWER 9 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
RN 26450-44-2 REGISTRY
CN **Nitrate-18O3 (8CI, 9CI)** (CA INDEX NAME)
MF **N O3**
LC STN Files: CA, CAPLUS, GMELIN*
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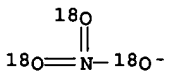
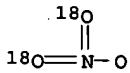
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: PRP (Properties)



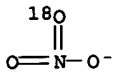
3 REFERENCES IN FILE CA (1907 TO DATE)
3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17 ANSWER 10 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
RN 26450-43-1 REGISTRY
CN **Nitrate (NO18O21-) (8CI)** (CA INDEX NAME)
MF **N O3**
LC STN Files: CA, CAPLUS
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: PRP (Properties)



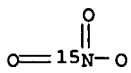
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17 ANSWER 11 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
RN 26450-42-0 REGISTRY
CN **Nitrate-18O (8CI)** (CA INDEX NAME)
OTHER NAMES:
CN **Nitrate (NO218O1-)**
MF **N O3**
LC STN Files: CA, CAPLUS
DT.CA CAplus document type: Journal
RL.NP Roles from non-patents: PRP (Properties)



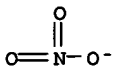
2 REFERENCES IN FILE CA (1907 TO DATE)
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17 ANSWER 12 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
RN 20515-92-8 REGISTRY
CN **Nitrate-15N (8CI, 9CI)** (CA INDEX NAME)
OTHER NAMES:
CN **Nitrate (15NO31-)**
MF **N O3**
CI COM
LC STN Files: AGRICOLA, BIOBUSINESS, CA, CAPLUS, GMELIN*, TOXCENTER
(*File contains numerically searchable property data)
DT.CA CAplus document type: Conference; Journal; Patent; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study)
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)



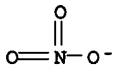
36 REFERENCES IN FILE CA (1907 TO DATE)
36 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17 ANSWER 13 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
RN 14797-55-8 REGISTRY
CN **Nitrate (6CI, 7CI, 8CI, 9CI)** (CA INDEX NAME)
OTHER NAMES:
CN **Nitrate (NO3-)**
CN **Nitrate ion**
CN **Nitrate ion (NO3-)**
CN **Nitrate ion(1-)**
CN **Nitrate(1-)**
CN Nitrato
CN Nitric acid, ion(1-)
FS 3D CONCORD
DR 23746-18-1, 73394-83-9, 34236-35-6
MF **N O3**
CI COM
LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMLIST, CIN, CSCHEM; CSNB, DDFU, DETHERM*, DRUGU, EMBASE, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, NIOSHTIC, PIRA, PROMT, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)
DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)



36601 REFERENCES IN FILE CA (1907 TO DATE)
102 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
36623 REFERENCES IN FILE CAPLUS (1907 TO DATE)
3 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L17 ANSWER 14 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
RN 12286-15-6 REGISTRY
CN **Nitrate(2-), trioxo- (9CI)** (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN **Nitrogen oxide (NO3), ion(2-) (8CI)**
OTHER NAMES:
CN **Nitrate (NO32-)**
CN **Nitrogen oxide (NO3) ion(2-)**
CN Nitrogen trioxide ion(2-)
CN **Trioxonitrate(2-)**
DR 16454-51-6, 23242-45-7
MF **N O3**
CI RIS
LC STN Files: CA, CAPLUS, TOXCENTER, ULIDAT
DT.CA CAplus document type: Conference; Journal; Patent; Report
RL.P Roles from patents: PROC (Process)
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.NP Roles for non-specific derivatives from non-patents: OCCU (Occurrence)



76 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
76 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17 ANSWER 15 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
RN 12033-49-7 REGISTRY
CN **Nitrogen oxide (NO3) (6CI, 8CI, 9CI)** (CA INDEX NAME)
OTHER NAMES:
CN **Nitrate free radical**
CN **Nitrate radical**
CN **Nitrate radical (NO3)**
CN Nitrato
CN Nitrogen trioxide
CN **Nitrogen trioxide (NO3)**
CN Nitrogen trioxide radical
DR 17062-88-3, 65883-44-5, 72457-62-6, 74902-57-1, 75277-23-5, 38668-13-2
MF **N O3**
CI COM
LC STN Files: AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, CA, CAOLD, CAPLUS, CASREACT, CEN, CHEMINFORMRX, CHEMLIST, CIN, CSNB, DETHERM*, IFICDB, IFIPAT, IFIUDB, PIRA, PROMT, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL
(*File contains numerically searchable property data)
DT.CA CAplus document type: Conference; Dissertation; Journal; Patent; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
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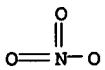

1267 REFERENCES IN FILE CA (1907 TO DATE)
2 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
1267 REFERENCES IN FILE CAPLUS (1907 TO DATE)
11 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> => d his

(FILE 'HOME' ENTERED AT 10:50:41 ON 08 OCT 2004)

FILE 'HCAPLUS' ENTERED AT 10:54:42 ON 08 OCT 2004
L1 55305 SLUDGES+OLD,NT/CT OR SOLID WASTES+OLD/CT (L)SLUDGE?
L2 50173 MICROORGANISM+OLD,NT/CT
L3 108731 (BACTERIA OR EUBACTERIA)/CW
L4 3041 FEED ADDITIVES/CT
L5 9377 FEED+OLD,NT/CT (L) (NUTRIENT? OR NUTRIT? OR CONC?)

FILE 'REGISTRY' ENTERED AT 10:56:58 ON 08 OCT 2004
L6 19 NO3 AND NITRATE NOT ((PMS OR MAN OR IDS)/CI OR COMPOUND OR COMP
L7 15 L6 NOT (NITROSODIOXY OR NITROSYL NITRATE OR PEROXYNITRITE)

FILE 'HCAPLUS' ENTERED AT 11:02:02 ON 08 OCT 2004
L8 337331 NITRATE OR NITRATE (1A) (TRIOXO OR ION) OR NITRATO OR NITRIC (1
L9 37921 L7
L10 1961 POLYESTER#/CW (L) HYDROXYCARBOXYLIC (1A) ACID
L11 273450 (WASTE (L) TREAT? OR DISPOSAL?)/CC,SX
L12 269444 (L1 OR L2 OR L11) AND (PY<=2000 OR AY<=2000 OR PRY<=2000 OR PRD
E DRAGOTTA D/AU
L13 3 E3-4
E NAGARAJAN V/AU
L14 246 E3-5,E9
E THOMAS S/AU
L15 412 E3,E23
E THOMAS STUART/AU
L16 26 E3,E5-6
L17 56078 (DUPONT OR DU (1A) PONT)/CS,PA
L18 2406 L1 AND L2-3 AND (PY<=2000 OR AY<=2000 OR PRY<=2000 OR PRY<20000
L19 3 L18 AND L4-5
L20 0 L19 AND L13-17
L21 3 L19 AND (PY<=2000 OR AY<=2000 OR PRY<=2000 OR PRY<20000908 OR A
SEL AN 2
L22 1 E1-2 AND L21
L23 193 L18 AND L8-9
L24 0 L23 AND L13-17
L25 10 L23 AND P/DT AND US/PC
SEL AN 1 3 6 8
L26 4 E3-10 AND L25
L27 0 L1 AND L2-3 AND L13-17
L28 70 L1 AND L13-17
L29 5 L28 AND L8-9
L30 1 L18 AND L10

FILE 'WPIX' ENTERED AT 11:45:16 ON 08 OCT 2004
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L32 60696 (A12-W11L OR B04-B02B? OR C04-B02B? OR B04-F01 OR C04-F01 OR B0
L33 541 (L31 AND L32) NOT (PY>2000 OR AY>2000 OR PRY>2000)
E R24028/DCN
E E3+ALL
L34 198 R24028?/DCN
E R24090/DCN
L35 0 R24090/DCN
E NITRATE/DCN
E E4+ALL
L36 697 R06352/DCN
L37 60995 (NITRATE OR NITRATE (1A) (TRIOXO OR ION) OR NITRATO OR NITRIC (
L38 0 L33 AND L34
L39 18 L33 AND L36-37
E DRAGOTTA D/AU
L40 1 E4
E NAGARAJAN V/AU
L41 33 E3-4

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                E THOMAS S/AU
L42           190 E3,E17
L43         24601 (DUPONT OR DU (1A) PONT)/CS,PA
L44             0 L39 AND L40-43
L45          5755 (FEED (1A) (NUTRIENT? OR NUTRIT? OR ADDIT?))/BIX
L46             0 L45 AND L39
L47             6 L45 AND L33
                SEL AN L39 2 4
L48             2 E1-2 AND L39

=> b hcap
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 substance identification.


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L29  ANSWER 1 OF 5  HCAPLUS  COPYRIGHT 2004 ACS on STN
AN   2002:185025  HCAPLUS
DN   136:251844
ED   Entered STN:  15 Mar 2002
TI   Polyhydroxyalkanoate levels as an indicator of bioreactor health
IN   Dragotta, Dominic A.; Nagarajan, Vasantha;
     Thomas, Stuart M.
PA   E. I. Du Pont de Nemours & Co., USA
SO   PCT Int. Appl., 39 pp.
     CODEN: PIXXD2
DT   Patent
LA   English
IC   ICM  C02F003-12
CC   60-1 (Waste Treatment and Disposal)
     Section cross-reference(s): 10
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     --------------      ----   --------    -------------------    --------
PI   WO 2002020416        A2    20020314    WO 2001-US27456        20010904
     WO 2002020416        A3    20020613
         W:  CA, JP, US
         RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
             PT, SE, TR
     US 2002052016        A1    20020502    US 2001-940298         20010828
     US 6737263           B2    20040518
     EP 1337475           A2    20030827    EP 2001-970633         20010904
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, FI, CY, TR
     JP 2004514545        T2    20040520    JP 2002-525046         20010904
     US 2004152151        A1    20040805    US 2004-761590         20040121
PRAI US 2000-231025P      P     20000908
     US 2001-940298       A3    20010828
     WO 2001-US27456      W     20010904
CLASS
 PATENT NO.       CLASS  PATENT FAMILY CLASSIFICATION CODES
 --------------   -----  ----------------------------------------------
 WO 2002020416    ICM    C02F003-12
 JP 2004514545    FTERM  4D028/AC03; 4D028/BB02; 4D028/BB07; 4D028/CA00;
                         4D028/CB03; 4D028/CC00; 4D040/BB42; 4D040/BB91;
                         4D040/BB93; 4D040/DD03; 4D040/DD14; 4D040/DD31
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AB A method has been developed for monitoring and controlling the biocatalytic efficiency of a wastewater treatment process comprising: (a) providing an activated sludge environment; (b) sampling wastewater from anaerobic, anoxic and/or aerobic stages of the treatment process; (c) measuring the concentration of polyhydroxyalkanoates or glycogen present in the sample to determine the status of a selected sample characteristic; and (d) adjusting the feed nutrient in the activated sludge environment depending on the status of the selected sample wherein the biocatalytic efficiency of a wastewater treatment process is controlled. The activated sludge environment provided comprises: (i) a carbon influx; (ii) cultures of autotrophic, heterotrophic and facultative microorganisms; (iii) a feed nutrient; and (iv) an end electron acceptor. In general, levels of PHA in excess of about 15 to about 20 dry weight of the biomass is an indication that the biocatalytic efficiency of the wastewater treatment process is impaired.

ST monitoring control biocatalytic efficiency activated sludge wastewater treatment; polyhydroxyalkanoate monitoring activated sludge wastewater treatment bioreactor

IT **Wastewater treatment**
(activated-**sludge** process, apparatus, performance of; method for monitoring and controlling biocatalytic efficiency of)

IT **Wastewater treatment**
(activated-**sludge** process; method for monitoring and controlling biocatalytic efficiency of)

IT Proteobacteria
(alpha, beta, and gamma; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process employing Proteobacteria)

IT Alcohols, biological studies
Amines, biological studies
Amino acids, biological studies
Carbohydrates, biological studies
Proteins
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(carbon source; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)

IT Denitrification
(efficiency of; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)

IT Polyesters, occurrence
RL: OCU (Occurrence, unclassified); OCCU (Occurrence)
(hydroxycarboxylic acid-based; use in method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)

IT Acinetobacter
Alcaligenes
Azoarcus
Burkholderia
Paracoccus
Pseudomonas
Rhodococcus
Sphingomonas
(method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process employing Proteobacteria)

IT Acids, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(organic, carbon source; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)

IT 1309-37-1, Ferric oxide, biological studies 7782-44-7, Oxygen, biological studies 10024-97-2, Nitrous oxide, biological studies 14797-65-0, Nitrite, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(end electron acceptor; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)

IT **14797-55-8, Nitrate**, biological studies 14808-79-8, Sulfate, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(feed nutrient and end electron acceptor; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)

IT 57-13-6, Urea, biological studies 7664-41-7, Ammonia, biological studies
14265-44-2, Phosphate, biological studies 18496-25-8, Sulfide
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(feed nutrient; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)
IT 124-38-9, Carbon dioxide, processes 1320-61-2, Hydroxybutyrate
9005-79-2, Glycogen, processes 50853-48-0, Pentanoic acid, hydroxy-
RL: BCP (Biochemical process); FMU (Formation, unclassified); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)

L29 ANSWER 2 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:610370 HCAPLUS
DN 135:375997
ED Entered STN: 23 Aug 2001
TI New DuPont wastewater management facility at Victoria, Texas
AU Robertaccio, F. L.; Beeman, R. E.; Leigh, J. B.; McManus, C. N.
CS E.I **DuPont** de Nemours, Wilmington, DE, 19898, USA
SO Water Environment Federation and Purdue University Industrial Wastes Technical Conference, St. Louis, MO, United States, May 21-24, 2000 (2000), 446-465 Publisher: Water Environment Federation, Alexandria, Va.
CODEN: 69BRGV
DT Conference; (computer optical disk)
LA English
CC 60-1 (Waste Treatment and Disposal)
Section cross-reference(s): 37
AB In August 1998 the DuPont Nylon Intermediates manufacturing plant at Victoria, Texas, commenced operation of a new wastewater management facility to replace deepwell disposal of wastewater. The new wastewater management facility features an innovative anoxic/aerobic biol. treatment plant, a 53-acre post treatment constructed wetland, and a 200-acre area for demonstration of the beneficial reuse of biosolids. The use of innovative processes produced a design basis and scope that reduced the total end-of-pipe wastewater management capital cost estimate from $100 million in 1991 to an actual cost of .apprx.$40 million. Cost redns. were achieved through a combination of conversion of former byproducts into coproducts, manufacturing process changes, and, recycle, recovery and reuse of ingredients. The wastewater treatment process is working extremely well with COD removal approaching 99% and complete removal of **nitrate** N. Wetland and beneficial reuse performance has met or exceeded expectations. This paper covers technol. innovation, design basis, equipment type/sizing, performance, risk management, cost, and key learning's for the 3 portions of the wastewater management facility (i.e. biol. treatment, wetland and beneficial reuse).
ST aerobic anaerobic nylon wastewater
IT **Wastewater treatment sludge**
(DuPont wastewater management facility at Victoria, Texas)
IT Polyamide fibers, miscellaneous
RL: MSC (Miscellaneous)
(DuPont wastewater management facility at Victoria, Texas)
IT **Nitrates**, processes
RL: REM (Removal or disposal); PROC (Process)
(DuPont wastewater management facility at Victoria, Texas)
IT Nitrites
RL: REM (Removal or disposal); PROC (Process)
(DuPont wastewater management facility at Victoria, Texas)
IT Wastewater treatment
(aerobic; DuPont wastewater management facility at Victoria, Texas)
IT Wastewater treatment
(anaerobic; DuPont wastewater management facility at Victoria, Texas)
IT Wastewater treatment
(denitrification; DuPont wastewater management facility at Victoria, Texas)
IT Wastewater treatment
(land application, wetland; DuPont wastewater management facility at Victoria, Texas)
IT Wastewater treatment
(nitrification; DuPont wastewater management facility at Victoria, Texas)
IT 14798-03-9, Ammonium, processes
RL: REM (Removal or disposal); PROC (Process)
(DuPont wastewater management facility at Victoria, Texas)
RE.CNT 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

(1) Duckworth, R; Strategic Networking for the 21st Century 1999

L29 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1997:554260 HCAPLUS
DN 127:209786
ED Entered STN: 30 Aug 1997
TI Intrinsic remediation in a wastewater sludge surface impoundment
AU Wood, Kenneth N.; Swindoll, C. Michael; Hartten, Andrew S.; Lee, Michael D.; Bishop, Arlen L.
CS DuPont Company, E.I. du Pont de Nemours and Company, Inc. Engineering, Wilmington, DE, 19898, USA
SO Proceedings - WEFTEC '96, Annual Conference & Exposition, 69th, Dallas, Oct. 5-9, 1996 (1996), Volume 3, 237-246 Publisher: Water Environment Federation, Alexandria, Va.
CODEN: 64VGAN
DT Conference
LA English
CC 60-4 (Waste Treatment and Disposal)
Section cross-reference(s): 61
AB Intrinsic remediation has been demonstrated as a viable corrective action alternative in a 3 ha, 30 m deep, surface impoundment that received wastewater biosolids, fly ash and other materials from an organic chemical manufacturing facility. Residual impoundment constituents include acetone, aniline, 2-butanone, p-cresol, benzene, other orgs. and heavy metals. A field and laboratory evaluation was conducted to assess whether these constituents were being biodegraded or immobilized in the sludge/fly ash media. In situ sampling of the impoundment was conducted along with surrounding groundwater characterization. Laboratory microcosms with actual pond materials demonstrated an active indigenous microbial population capable of degrading the residual orgs. under aerobic, denitrifying, sulfate-reducing and methanogenic conditions that exist in various zones of the impoundment. Abiotic processes (sorption, oxidation-reduction and precipitation) are also contributing to the destruction and immobilization of inorg. and semi-volatile organic constituents. Downgradient monitoring well data and groundwater flow path modeling confirm that the offsite groundwater quality is not being impacted. Intrinsic remediation offers significant environmental benefits over other more costly and intrusive corrective action alternatives and should be allowed to continue.
ST intrinsic remediation wastewater sludge surface impoundment
IT Ashes (residues)
(fly; intrinsic remediation in wastewater sludge surface impoundment)
IT Environmental modeling
Wastewater treatment sludge
(intrinsic remediation in wastewater sludge surface impoundment)
IT Heavy metals
Nitrates, occurrence
Nitrites
Sulfates, occurrence
Sulfides, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(intrinsic remediation in wastewater sludge surface impoundment)
IT Semivolatile substances
(organic,; intrinsic remediation in wastewater sludge surface impoundment)
IT 62-53-3, Benzenamine, occurrence 67-64-1, 2-Propanone, occurrence 71-43-2, Benzene, occurrence 74-82-8, Methane, occurrence 78-93-3, 2-Butanone, occurrence 85-68-7, Butylbenzyl phthalate 86-73-7, Fluorene 91-20-3, Naphthalene, occurrence 95-47-6, o-Xylene, occurrence 100-41-4, Ethylbenzene, occurrence 100-42-5, occurrence 106-44-5, p-Cresol, occurrence 108-38-3, m-Xylene, occurrence 123-91-1, 1,4-Dioxane, occurrence 7439-89-6, Iron, occurrence 7439-92-1, Lead, occurrence 7439-96-5, Manganese, occurrence 7440-02-0, Nickel, occurrence 7440-38-2, Arsenic, occurrence 7440-39-3, Barium, occurrence 7440-43-9, Cadmium, occurrence 7440-47-3, Chromium, occurrence 7440-50-8, Copper, occurrence 7440-62-2, Vanadium, occurrence 7440-66-6, Zinc, occurrence 7664-41-7, Ammonia, occurrence 7723-14-0, Phosphorus, occurrence 7727-37-9, Nitrogen, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(intrinsic remediation in wastewater sludge surface impoundment)

L29 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1996:292610 HCAPLUS
DN 124:324368
ED Entered STN: 17 May 1996
TI Planning for the elimination of deepwells: Development of a process to treat a high COD, high **nitrate** wastewater

AU Koon, John H.; Griffith, David B.; Robertaccio, Francis L.; Hockenbury, Melvin R.; Dell, Janet Jensen; McManus, Cynthia N.; **Dragotta, Dominic A.**
CS Parsons Engineering-Science, Atlanta, GA, USA
SO Proceedings of the Water Environment Federation Annual Conference & Exposition, 68th, Miami Beach, Fla., Oct. 21-25, 1995 (1995), Volume 3, 409-420 Publisher: Water Environment Federation, Alexandria, Va. CODEN: 62RLA4
DT Conference
LA English
CC 60-1 (Waste Treatment and Disposal)
Section cross-reference(s): 38
AB Bench scale treatability studies were conducted to determine kinetic parameters and achievable effluent characteristics for the biol. treatment of process wastewaters from the DuPont nylon intermediates plant at Victoria, Texas. DuPont Victoria will design and construct a biotreatment system by 1997 to handle organic wastes that are currently being managed using deepwell technol. The new treatment facility will treat 2 major wastestreams: an acids waste which contains a COD of 8600 mg/L, high concns. of several organic acids, and has a NO3- concentration of 3300 mg/L and a 311 waste which contains various nitriles, a COD of 3400 mg/L, some ammonia, and .apprx.30 mg/L of cyanide. Three single sludge, 2-stage, continuous-flow biol. reactors were operated at a range of sludge ages. Results indicated that the organic constituents in the wastes were readily treated in the biol. system. **Nitrate** was readily reduced by the denitrification process using primarily the organic acids as the organic substrate. The sludge yield for the system was low. Other unique treatability features included stable operation with influent pH 2-3, high temperature (30-40.degree.) operation, and very high specific **nitrate** removal rates.
ST nylon intermediate wastewater biol treatment
IT Polyamides, miscellaneous
RL: MSC (Miscellaneous)
(nylon intermediate wastewater biol. treatment)
IT Cyanides, processes
RL: REM (Removal or disposal); PROC (Process)
(nylon intermediate wastewater biol. treatment)
IT **Nitrates**, processes
RL: REM (Removal or disposal); PROC (Process)
(nylon intermediate wastewater biol. treatment)
IT Nitriles, processes
RL: REM (Removal or disposal); PROC (Process)
(nylon intermediate wastewater biol. treatment)
IT Nitrites
RL: REM (Removal or disposal); PROC (Process)
(nylon intermediate wastewater biol. treatment)
IT **Wastewater treatment**
(activated-**sludge** process, nylon intermediate wastewater biol. treatment)
IT Wastewater treatment
(anoxic, nylon intermediate wastewater biol. treatment)
IT Wastewater treatment
(biol., nylon intermediate wastewater biol. treatment)
IT Wastewater treatment
(denitrification, nylon intermediate wastewater biol. treatment)
IT 7664-41-7, Ammonia, processes
RL: REM (Removal or disposal); PROC (Process)
(nylon intermediate wastewater biol. treatment)

L29 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1983:61809 HCAPLUS
DN 98:61809
ED Entered STN: 12 May 1984
TI Physical and chemical characterization of synthetic calcined sludge
AU Slates, R. V.; Mosley, W. C., Jr.; Tiffany, B.; Stone, J. A.
CS Savannah River Lab., **Du Pont** de Nemours, E. I., and Co., Aiken, SC, USA
SO Report (1982), DP-1541; Order No. DE82012373, 72 pp. Avail.: NTIS From: Gov. Rep. Announce. Index (U. S.) 1982, 82(24), 5110
DT Report
LA English
CC 71-11 (Nuclear Technology)
AB Calcined synthetic sludge was chemical characterized in support of engineering studies to design a processing plant to solidify highly radioactive waste at the Savannah River Plant. An anal. technique is described which provides quant. data by mass spectrometric anal. of gases evolved during thermogravimetric anal. without measurements of gas flow

rates or mass spectrometer sensitivities. Calcined sludge consisted primarily of amorphous particles of hydrous oxides with Fe, Mn, Ni and Ca distributed fairly uniformly throughout the powder. Fe, Mn, Ni, and Ca existed in forms that are highly insol. in water, but Al, sulfate, nitrate and Na exhibit relative water solubilities that increase in the given order from 60 to 94%. Evolved gas anal. in a He atmospheric showed that calcined sludge was completely dehydrated by heating to 400.degree., CO2 was evolved at 100-700.degree., and O was evolved at 400-1000.degree.. Evolved gas analyses are also reported for uncalcined sludge. A spinel-type oxide similar to NiFe2O4 was detected at very low level in calcined sludge.

ST sludge synthetic calcined characteristic; radioactive waste high level sludge

IT Calcination
(of synthetic sludge, particle distribution in)

IT Slimes and Sludges
(synthetic calcined, characteristics of, radioactive waste solidification in relation to)

IT Radioactive wastes
(high-level, calcined synthetic sludge characteristics in relation to)

IT 7439-89-6, properties 7439-96-5, properties 7440-02-0, properties 7440-70-2, properties
RL: PRP (Properties)
(distribution of, in calcined synthetic sludge)

IT 124-38-9P, preparation 7782-44-7P, preparation
RL: PREP (Preparation)
(evolution of, from calcination of synthetic sludge)

IT 12168-54-6P
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in calcined sludge)

IT 7429-90-5, properties 7440-23-5, properties 14797-55-8, properties 14808-79-8, properties
RL: PRP (Properties)
(solubility of, in synthetic calcined sludge)

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L22 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:427854 HCAPLUS
DN 129:120094
ED Entered STN: 11 Jul 1998
TI Soil microorganisms for manufacturing feed and fertilizer from organic waste
IN Fukunaga, Isami
PA Fukunaga, Isami, Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C12N001-00
ICS A01K001-015; A23K001-10; C05F011-08; C05F017-00
CC 10-2 (Microbial, Algal, and Fungal Biochemistry)
Section cross-reference(s): 17, 19, 60

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10174582	A2	19980630	JP 1996-336859	19961217 <--

PRAI JP 1996-336859 19961217 <--

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 10174582	ICM	C12N001-00
	ICS	A01K001-015; A23K001-10; C05F011-08; C05F017-00

AB Organic waste such as agricultural waste is inoculated with the soil microorganisms to manufacture feed, organic fertilizer, feed additive, etc.

ST soil microorganism org waste treatment

IT Wastes
(agricultural; soil microorganisms for manufacturing feed and fertilizer from organic waste)

IT Wastewater treatment
(biol.; soil microorganisms for manufacturing feed and fertilizer from organic waste)

IT Solid wastes
(domestic; soil microorganisms for manufacturing feed and fertilizer from organic waste)

IT Fertilizers
RL: BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)
(organic; soil microorganisms for manufacturing feed and fertilizer from organic waste)
IT Environmental pollution control
Excretions
Feed
Feed additives
Soil microorganism
Urine
Wastewater treatment sludge
(soil microorganisms for manufacturing feed and fertilizer from organic waste)

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L26 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN
AN **2004:176540** HCAPLUS
DN 140:222453
ED Entered STN: 04 Mar 2004
TI Microbial enzyme-enhanced organic-inorganic solid-chemical composition and methods for anaerobic bioremediation
IN Hince, Eric Christian
PA Geovation Technologies, Inc., USA
SO U.S., 17 pp., Cont.-in-part of U.S. Ser. No. 441,484.
CODEN: USXXAM
DT **Patent**
LA English
IC ICM C12N011-18
NCL 435262000; 435262500; 071006000; 210611000; 423-DIG.17
CC 60-1 (Waste Treatment and Disposal)
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	US 6699707	B1	20040302	US 2000-690395	20001017	<--
	US 6423531	B1	20020723	US 1999-441484	19991117	<--
PRAI	US 1999-441484	A2	19991117	<--		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 6699707	ICM	C12N011-18
	NCL	435262000; 435262500; 071006000; 210611000; 423-DIG.17
US 6699707	ECLA	B09C001/08; B09C001/10 <--

AB The present invention discloses the formulation and use of an advanced solid-media chemical composition which includes both plant-derived and inorg. components which is designed and intended to enhance the removal of a broad range of recalcitrant organic and inorg. contaminants in the environment by providing an improved means of promoting the anaerobic, biol. mediated degradation, transformation, and/or detoxification of the contaminants which may be present in solid and liquid wastes, soils, sediments, and water bodies. The invention provides for improved means of (i) promoting the solid-phase extraction, absorption, and adsorption of recalcitrant contaminants from contaminated media, (ii) creating, enhancing, and maintaining anaerobic and highly reducing conditions (i.e., neg. Eh values); (iii) providing sources of carbonaceous co-substrates, inorg., and organic anaerobic electron acceptors, and organic and inorg. nutrients to promote the growth of contaminant-degrading microorganisms, and (iv) providing sources of inoculum of naturally occurring microorganisms which act to promote the biodegrdn. of contaminants. Thus, application of a composition containing alfalfa meal and cotton lint, Ancor Image 100 (sponge iron), pyrolusite, and yellow boy (a biogenic ferric oxyhydroxide obtained from an acid mine drainage site) to DDT- and toxaphene-contaminated soil resulted in rapid degradation of the pesticides with half-times of 13 days. This composition was also successfully used to reduce PCB and PAH content of contaminated gypsum sludge.
ST anaerobic bioremediation plant material iron manganese bacteria fungi enzyme
IT **Sludges**
(aqueous; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
IT Polycyclic compounds
RL: POL (Pollutant); REM (Removal or disposal); OCCU (Occurrence); PROC (Process)
(aromatic hydrocarbons; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)

IT Remediation
(bioremediation; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
IT Aegilops
Cannabaceae
Fabaceae
Glycine (genus)
Gossypium hirsutum
Lathyrus
Lespedeza
Medicago
Phaeophyceae
Sargassum
Trifolium
Triticum aestivum
Vicia
(composition containing material from; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
IT Avena sativa
Hordeum vulgare
Humulus
Secale cereale
(fibrous materials or wastes from; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
IT **Microorganism**
(from acid mine drainage; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
IT **Sludges**
(gypsum; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
IT Wastes
(industrial; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
IT **Eubacteria**
(legume-associated; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
IT Polyphosphates
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(linear; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
IT **Eubacteria**
(metal-reducing; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
IT Phosphates, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(metaphosphates, ringed; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
IT Aquatic sediments
Arthrobacter
Aspergillus
Bacillus (bacterium genus)
Bradyrhizobium
Clostridium
Fibrobacter
Geobacter
Groundwaters
Hazardous wastes
Nocardia
Pseudomonas
Rhizobium
Soil **bacteria**
Soils
Surface waters
Trichoderma
Wastewater treatment
(microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
IT Fulvic acids
Humic acids
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)

IT Pesticides
(organochlorine; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
IT **Eubacteria**
Fungi
(plant fiber-degrading; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
IT Aromatic hydrocarbons, processes
RL: POL (Pollutant); REM (Removal or disposal); OCCU (Occurrence); PROC (Process)
(polycyclic; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
IT Polyphosphoric acids
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(sodium salts; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
IT 11115-92-7, Iron hydroxide oxide
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(biogenic (yellow boy); microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
IT 60-00-4, EDTA, biological studies 77-92-9, Citric acid, biological studies 139-13-9, Nitrilotriacetic acid 994-36-5, Sodium citrate 7631-99-4, Sodium **nitrate**, biological studies 7757-79-1, Potassium **nitrate**, biological studies 7785-84-4, Sodium trimetaphosphate 9000-92-4, Amylase 9001-62-1, Lipase 9001-92-7, Protease 9012-54-8, Cellulase 9015-78-5, Glucanase 9025-56-3, Hemicellulase 10377-66-9, Manganese **nitrate** 10421-48-4, Ferric **nitrate** 12174-34-4, Psilomelane 14854-26-3, Pyrolusite 17141-63-8, Manganous **nitrate** hexahydrate 19768-33-3D, Manganese(IV), minerals, biological studies 20694-39-7, Manganous **nitrate** tetrahydrate 61538-65-6, Potassium sodium **nitrate**
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
IT 50-29-3, DDT, processes 92-52-4D, 1,1'-Biphenyl, chloro derivs. 8001-35-2, Toxaphene
RL: POL (Pollutant); REM (Removal or disposal); OCCU (Occurrence); PROC (Process)
(microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
IT 7439-96-5, Manganese, biological studies 12597-69-2, Steel, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(particles; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
IT 7439-89-6, Iron, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(porous particles; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Abdullah; US 5932472 A 1999 HCAPLUS
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(16) Rothmel; US 5567324 A 1996 HCAPLUS
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(19) Szejtli; US 5425881 A 1995

L26 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:355497 HCAPLUS
DN 138:357854
ED Entered STN: 09 May 2003
TI Biological treatment process
IN Khudenko, Boris M.
PA USA
SO U.S. Pat. Appl. Publ., 16 pp.
CODEN: USXXCO
DT Patent
LA English
IC ICM C02F003-30
NCL 210603000
CC 60-1 (Waste Treatment and Disposal)
Section cross-reference(s): 47
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2003085171	A1	20030508	US 2001-10271	20011105 <--
PRAI US 2001-10271		20011105 <--		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2003085171	ICM	C02F003-30
	NCL	210603000

AB A method of biol. treatment of wastewater with biomass is presented, the wastewater and the biomass forming a mixed liquor in a tall stacking reactor with a top, a bottom, and an essentially horizontal partition between the top and the bottom, comprising: (a) at least one anaerobic treatment step conducted between the bottom and the partition, a digestion gas comprising CH4 and CO2 is formed in the anaerobic treatment, (b) a . step of mixing the mixed liquor in the anaerobic step by at least one controllable gaslift with a gas other than the digestion gas, and (c) at least one step of treatment of the wastewater conducted between the partition and the top of the reactor. The latter step is selected from: aerobic treatment, aerobic treatment with aeration by air, aerobic treatment with aeration by O2, aerobic treatment with nitrification, aerobic treatment with denitrification, aerobic treatment with phosphorus removal, anoxic treatment, treatment with iron as intermediate oxidation-reduction specie, anaerobic hydrolysis treatment, anaerobic acetogenic treatment, anaerobic acidogenic treatment, anaerobic sulfate reduction treatment, anaerobic methanogenic treatment, and combinations thereof. Pressurized digestion gases, primarily CO2 and CH4, generated in the anaerobic section are collected under the partition. The process is further improved by providing a recuperable alkalinity and stripping of biol. generated CO2 so that the free CO2 concentration in the anaerobic mixed liquor is very low and a CH4-rich digestion gas is produced. Production of pressurized CH4-rich digestion gas is the major benefit of the process. Other improvements are in the controllable gaslift mixing with gases other than digestion gases, improved process performance with increasing operating temps. due to bioheating, and improved solid-liquid separation due to the use of the distillation techniques making use of the bioheating and heat recycle.

ST stacked bioreactor anaerobic aerobic wastewater treatment methane digestion gas; biol wastewater treatment stacked reactor controllable gaslift mixing

IT Nutrients
(addition of; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)

IT Wastewater treatment
(aerobic; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)

IT Wastes
(agricultural, treatment of; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)

IT Bioreactors
(air-lift; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)

IT Wastewater treatment
(anaerobic; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)

IT Wastewater treatment
(anoxic; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)

IT Soils
(contaminated, treatment of; biol. treatment of wastewater with biomass

in stacked reactor to produce methane-rich digestion gas)
IT Wastewater treatment
(distillation, for separation of solids and liqs.; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
IT Air
(gaslift gas; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
IT Wastes
(industrial, treatment of; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
IT Nutrients
(micronutrients, addition of; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
IT Wastewater treatment
(mixing, gas-lift; controllable; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
IT Lagoon waters
Pond waters
(polluted; treatment of; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
IT Intestinal bacteria
(probiotic, addition of; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
IT Redox agents
(recuperable; addition of; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
IT Acids, uses
Alkali metal hydroxides
Bases, uses
RL: MOA (Modifier or additive use); USES (Uses)
(recuperable; addition of; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
IT Bioreactors
(stacking; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
IT Biomass
Guano
Hazardous wastes
Manure
Wastewater treatment sludge
(treatment of; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
IT 74-82-8, Methane, processes
RL: BCP (Biochemical process); FMU (Formation, unclassified); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
IT 124-38-9, Carbon dioxide, processes
RL: BCP (Biochemical process); FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); REM (Removal or disposal); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
IT 7727-37-9, Nitrogen, uses 7782-44-7, Oxygen, uses 11104-93-1, Nitrogen oxide, uses
RL: NUU (Other use, unclassified); USES (Uses)
(gaslift gas; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
IT 7439-89-6, Iron, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(redox species; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)

L26 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:315411 HCAPLUS
DN 136:329912
ED Entered STN: 26 Apr 2002
TI Biodegradation of ethers using a bacterial culture
IN Salanitro, Joseph Patrick
PA USA
SO U.S. Pat. Appl. Publ., 15 pp., Cont.-in-part of U. S. 6,238,906.
CODEN: USXXCO
DT Patent
LA English

IC ICM C12P039-00
ICS C12S001-00; B09B003-00; C02F009-00
NCL 435262500
CC 60-1 (Waste Treatment and Disposal)
FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002048808	A1	20020425	US 1999-438595	19991112 <--
	US 5750364	A	19980512	US 1995-465996	19950606 <--
	US 6238906	B1	20010529	US 1999-292037	19990414 <--
	WO 2000063343	A2	20001026	WO 2000-EP3254	20000410 <--
	WO 2000063343	A3	20010222		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	EP 1169431	A2	20020109	EP 2000-926874	20000410 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
PRAI	US 1995-465996	A2	19950606 <--		
	US 1999-292037	A2	19990414 <--		
	US 1999-438595	A	19991112 <--		
	US 1999-439887	A	19991112 <--		
	US 1999-439905	A	19991112 <--		
	US 1999-439977	A	19991112 <--		
	WO 2000-EP3254	W	20000410 <--		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2002048808	ICM	C12P039-00
	ICS	C12S001-00; B09B003-00; C02F009-00
	NCL	435262500

AB A bacterial culture capable of degrading ethers, especially branched alkylethers including MTBE, under aerobic conditions has been prepared
ST methyl tert butyl ether degrdn bacteria
IT **Eubacteria**
(ATCC 202057; biodegrdn. of ethers using an isolated mixed bacterial culture)
IT Achromobacter
Coryneform **bacteria**
Pseudomonas
(biodegrdn. of ethers using an isolated mixed bacterial culture)
IT Ethers, processes
RL: BSU (Biological study, unclassified); REM (Removal or disposal); BIOL (Biological study); PROC (Process)
(biodegrdn. of ethers using an isolated mixed bacterial culture)
IT Decomposition
(biodegrdn.; biodegrdn. of ethers using an isolated mixed bacterial culture)
IT Nitrification
(biol.; biodegrdn. of ethers using an isolated mixed bacterial culture)
IT Taxonomy
(chemotaxonomy, mol., and biochem.; biodegrdn. of ethers using an isolated mixed bacterial culture)
IT Evolution
(mol.; biodegrdn. of ethers using an isolated mixed bacterial culture)
IT **Wastewater treatment sludge**
(secondary, source of mixed culture; biodegrdn. of ethers using an isolated mixed bacterial culture)
IT Rhodococcus
(strain 10BC; biodegrdn. of ethers using an isolated mixed bacterial culture)
IT 7782-44-7, Oxygen, processes 12125-02-9, Ammonium chloride, processes
RL: BCP (Biochemical process); BIOL (Biological study); PROC (Process)
(biodegrdn. of ethers using an isolated mixed bacterial culture)
IT **14797-55-8P, Nitrate**, preparation
RL: BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)
(biodegrdn. of ethers using an isolated mixed bacterial culture)
IT 50-21-5, Lactic acid, biological studies 67-63-0, Isopropanol, biological studies 75-65-0, tert-Butyl alcohol, biological studies

124-38-9, Carbon dioxide, biological studies 762-75-4, tert-Butyl formate
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(biodegrdn. of ethers using an isolated mixed bacterial culture)
IT 108-20-3, Diisopropyl ether 628-55-7, Diisobutyl ether 637-92-3
919-94-8, tert-Amyl ethyl ether 994-05-8, tert-Amyl methyl ether
1634-04-4, Methyl tert-butyl ether 3249-46-5 3249-47-6 6163-66-2,
Di-tert-butyl ether 17348-59-3 74058-13-2 78448-33-6 207568-51-2
RL: BSU (Biological study, unclassified); REM (Removal or disposal); BIOL (Biological study); PROC (Process)
(biodegrdn. of ethers using an isolated mixed bacterial culture)

L26 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN
AN **1999:183797** HCAPLUS
DN 130:227130
ED Entered STN: 22 Mar 1999
TI Method for sludge treatment by using light-weight porous carbonaceous materials
IN Tanaka, Yonemi
PA Japan
SO Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
IC ICM C02F011-12
ICS C02F001-28; C02F003-34; C05F007-00; C05F017-00
CC 60-4 (Waste Treatment and Disposal)
Section cross-reference(s): 19
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	JP 11070400	A2	19990316	JP 1998-151949	19980518	<--
	JP 2983014	B2	19991129			
	US 6238564	B1	20010529	US 1998-97584	19980616	<--
PRAI	JP 1997-177583	A	19970617	<--		
	JP 1998-151949	A	19980518	<--		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 11070400	ICM	C02F011-12
	ICS	C02F001-28; C02F003-34; C05F007-00; C05F017-00

AB The method is carried out by adding and mixing powdered and/or granular carbonaceous materials (e.g., activated carbon, carbonization material from waste tires) into the sludge, for adsorption of sludge for floatation then precipitation, to sep. sludge from water to be used as compost. The treatment also includes adding nitrites, **nitrates**, and saccharides into the sludge in the presence of photosynthesis microorganism.
ST sludge treatment carbonaceous material microorganism compost
IT Actinomycetes
Compost
Microorganism
Scrap tires
Sludges
Solid wastes
Wastewater treatment sludge
(method for **sludge** treatment by using light-weight porous carbonaceous materials)
IT Carbohydrates, uses
Monosaccharides
Nitrates, uses
Nitrites
Polysaccharides, uses
RL: NUU (Other use, unclassified); USES (Uses)
(method for sludge treatment by using light-weight porous carbonaceous materials)
IT Carbonaceous materials (technological products)
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(method for sludge treatment by using light-weight porous carbonaceous materials)
IT 7440-44-0, Carbon, processes
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(activated; method for sludge treatment by using light-weight porous carbonaceous materials)

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L30 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:709511 HCAPLUS
DN 134:208832
ED Entered STN: 09 Oct 2000
TI Synthesis of bioplastics from food industry wastes with activated sludge biomass
AU Wong, A. L.; Chua, H.; Lo, W. H.; Yu, P. H. F.
CS Open Laboratory of Chirotechnology and Dept. of Applied Biology and Chemical Technology, Hong Kong Polytechnic University, Hong Kong
SO Water Science and Technology (2000), 41(12, Environmental Biotechnology), 55-59
CODEN: WSTED4; ISSN: 0273-1223
PB IWA Publishing
DT Journal
LA English
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 10, 17, 37, 60
AB This paper describes the microbial production of polyhydroxyalkanoates (PHAs) from food industry wastes by a mixed culture of activated sludge microorganisms. The phys. and chemical properties of the bioplastics produced by the microorganisms from malt and soy wastes were different. The m.ps. of the products were compared, and the co-polymer composition of the products was investigated by gas chromatog. and NMR spectroscopy. In using activated sludge to convert the carbon source into PHAs, not only are environment-friendly bioplastics produced, but also the problem of disposing of municipal activated sludge is partly solved. The selection of food industry waste as the carbon source can also reduce the cost of producing PHAs.
ST bioplastic synthesis food industry waste activated sludge biomass
IT Plastics, properties
RL: BPN (Biosynthetic preparation); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(bio-; synthesis of bioplastics from food industry wastes with activated sludge biomass)
IT **Solid wastes**
(food-processing; synthesis of bioplastics from food industry wastes with activated **sludge** biomass)
IT **Polyesters**, properties
RL: BPN (Biosynthetic preparation); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(**hydroxycarboxylic acid**-based; synthesis of bioplastics from food industry wastes with activated sludge biomass)
IT Soybean (Glycine max)
(okara; synthesis of bioplastics from food industry wastes with activated sludge biomass)
IT Food processing
(solid wastes; synthesis of bioplastics from food industry wastes with activated sludge biomass)
IT Biomass
Microorganism
Sludges
(synthesis of bioplastics from food industry wastes with activated sludge biomass)
IT Malt
(wastes; synthesis of bioplastics from food industry wastes with activated sludge biomass)
RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
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(2) Chuang, S; Wat Sci Tech 1998, V37(4), P593
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(9) Yu, P; Wat Sci Tech 1999, V40(1), P365 HCAPLUS

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FILE LAST UPDATED: 6 OCT 2004 <20041006/UP>
MOST RECENT DERWENT UPDATE: 200464 <200464/DW>
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L48 ANSWER 1 OF 2 WPIX COPYRIGHT 2004 THE THOMSON CORP on STN
AN **2000-170602** [15] WPIX
CR 2002-237077 [29]; 2004-326746 [30]; 2004-347676 [32]
DNN N2000-126838 DNC C2000-052946
TI Novel method for the anaerobic biodegradation of (in)organic toxins in contaminated geological media uses compositions containing inorganic nutrients for MRP (multiple respiration pathway) microorganisms.
DC C07 D15 D16 E19 E37 P43
IN ANDERSON, T H; HINCE, E C; ZIMMER, R L
PA (GEOV-N) GEOVATION CONSULTANTS INC
CYC 1
PI US 6020185 A 20000201 (200015)* 30 B09B003-00 <--
ADT US 6020185 A US 1997-862782 19970523
PRAI US 1997-862782 19970523
IC ICM **B09B003-00**
AB US 6020185 A UPAB: 20040520
NOVELTY - A novel method of bioremediation of contaminated geologic media by alternating the cycles of redox potential and/or the predominant microbial respiration pathway within the contaminated geologic media, by employing one or more chemical compositions (I) - (VI).
DETAILED DESCRIPTION - A method of alternating the cycles of redox potential and/or the predominant microbial respiration pathway within the contaminated geologic media, by employing one or more chemical compositions selected from:
(I) A liquid chemical composition (I) for anaerobic biodegradation, detoxification, and transformation of toxic organic and inorganic compounds in contaminated geologic media, being ammonia free, comprises (pounds per gallon):
(i) sodium **nitrate** as the only nitrogen source and as an electron acceptor (0.2 - 4);
(ii) sodium hexametaphosphate and/or other ringed or linear polyphosphate compounds as a source of biologically hydrolyzable phosphorus (0.05 -5);
(iii) a surfactant present in 0.01 - 10 % by volume;
(iv) a diluent; and
(v) one or more chelating agents.
(II) a liquid chemical composition (II) free of ammonia, comprising:
(i) sodium **nitrate**;
(ii) nitrous oxide;
(iii) a source of biologically hydrolyzable phosphorus (sodium hexametaphosphate and/or other ringed or linear polyphosphate);
(iv) a surfactant;
(v) a diluent; and
(vi) one or more chelating agents;
(III) a liquid chemical composition (III), comprising:
(i) ferrous sulfate heptahydrate as a sulfate containing electron acceptor compound;
(ii) sodium sulfate or other soluble sulfate salt;
(iii) a source of biologically hydrolyzable phosphorus (sodium hexametaphosphate and/or other ringed or linear polyphosphate);

(iv) a surfactant;
(v) a diluent; and
(vi) one or more chelating agents;
(IV) a chemical composition (IV), comprising:
(i) ferric **nitrate** nonahydrate as a source of nutrient nitrogen and two forms of electron acceptor;
(ii) a source of biologically hydrolyzable phosphorus (sodium hexametaphosphate and/or other ringed or linear polyphosphate);
(iii) a surfactant;
(iv) a diluent; and
(v) one or more chelating agents;
(V) a chemical composition (V), comprising:
(i) manganese nitrate, manganese nitrate tetrahydrate, or manganese nitrate hexahydrate as a source of electron acceptor nitrogen, nutrient nitrogen and micronutrient manganese;
(ii) a source of biologically hydrolyzable phosphorus (sodium hexametaphosphate and/or other ringed or linear polyphosphate);
(iii) a surfactant;
(iv) a diluent; and
(v) one or more chelating agents; and
(VI) a chemical composition (VI) comprising:
(i) a chelating agent which makes transition metals including, but not limited to Mn(IV) and Fe(IIII) present in the geologic media more biologically available to MRP (multiple respiration pathway) microorganisms;
(ii) a source of biologically hydrolyzable phosphorus (sodium hexametaphosphate and/or other ringed or linear polyphosphate);
(iii) a surfactant; and
(iv) a diluent.

The method comprises:

(A) introducing one or more of chemical compositions (I) to (VI) into the contaminated geologic media for one or more specified periods of time;

(B) subsequently introducing one or more of chemical compositions (I) to (VI) into the contaminated geologic media for one or more additional specified periods of time; and

(C) repeating and/or alternating steps (A) and (B) until the levels of contaminants in the contaminated geologic media have been reduced.

INDEPENDENT CLAIMS are also provide for:

(1) the composition (I); and

(2) a method of alternating the cycles of redox potential and/or the predominant microbial respiration pathway of MRP anaerobic bacteria within the contaminated geologic media in situ, by employing one or more chemical compositions selected from chemical compositions (I) to (VI) defined above, comprising:

(A) performing a first phase of operation by adding one or more of compositions (I), (II), (IV), (V) into the contaminated geologic media for one or more specified periods of time at a specific delivery rate for promoting the growth of indigenous MRP anaerobic microorganisms via the denitrification pathway;

(B) performing a second phase of operation by adding one or more of compositions (III), (IV), (V) and (VI) into the contaminated geologic media for one or more specified periods of time at a specific delivery rate for promoting the growth of indigenous MRP anaerobic microorganisms via microbial respiration pathways involving manganese reduction, iron reduction and/or the reduction of other metals;

(C) performing a third phase of operation by adding composition (III) for one or more additional specified periods of time at a specific delivery rate for promoting the growth of anaerobic bacteria via the sulfate reduction pathway; and

(D) repeating and/or alternating steps (A), (B) and (C) until the levels of contaminants in the contaminated geologic media have been reduced.

USE - Used for the biodegradation, transformation or detoxification of toxic organic and inorganic compounds in contaminated geologic formations to harmless and safe organic and inorganic materials.

ADVANTAGE - Toxic organic and inorganic contaminants are degraded, detoxified and transformed to products that do not effect air, water and soil at the site of remediation. The bioremediation system is inexpensive and easy to operate, especially in the field on a large scale basis. The process can be performed rapidly and safely in the field resulting in the site meeting environmental clean-up standards set by various governmental agencies more rapidly and at a lower cost than can be accomplished with other methods. The bioremediation system can be easily produced in an automated and economical manner and is readily affordable by responsible parties (engineers, government agencies, etc.).

DESCRIPTION OF DRAWING(S) - A side elevational view of the anaerobic

bioremediation apparatus and its major component assemblies.
chemical composition 40
bioremedial processing apparatus 50
dipensing apparatus 80
carrier gas cylinder 82
well component assembly 150
Dwg.1/12
FS CPI GMPI
FA AB; GI; DCN
MC CPI: **C04-F01**; **C04-F09**; **C04-F10**; C05-A01B;
C05-A03A; C05-B01P; C05-B02A; C05-B02A3; C05-B02C; C05-C02; C05-C03;
C05-C05; C09-D02; C10-B01B; C10-B02J; C10-C02; C10-C04E; C10-E04D;
C10-G03; C10-H01; C10-H02E; C10-H02F; C11-B; C11-C09; C14-T01; C14-W;
D04-A01J; **D04-B**; D05-A04B; D05-H04; E10-B01C; E10-C02A;
E11-Q02; E31-H05; E31-K06; E33-E; E35-S; E35-U04; E35-U05

L48 ANSWER 2 OF 2 WPIX COPYRIGHT 2004 THE THOMSON CORP on STN
AN **1999-097114** [09] WPIX
CR 1999-036001 [04]
DNC C1999-028875
TI Biological purification of waste water using nitrification and denitrification reactors - which are separated by a nozzle plate allowing use of bacteria support materials of different size and density.
DC A97 D15
IN DICKGREBER, M
PA (PREU) PREUSSAG NOELL WASSERTECHNIK GMBH; (PREU) PREUSSAG WASSERTECHNIK GMBH
CYC 1
PI DE 19758486 A1 19990121 (199909)* 4 C02F003-30
DE 19758486 C2 20000817 (200040) C02F003-30
ADT DE 19758486 A1 Div ex DE 1997-1023789 19970606, DE 1997-1058486 19970606;
DE 19758486 C2 Div ex DE 1997-1023789 19970606, DE 1997-1058486 19970606
FDT DE 19758486 A1 Div ex DE 19723789; DE 19758486 C2 Div ex DE 19723789
PRAI DE 1997-19723789 19970606; DE 1997-19758486 19970606
IC ICM C02F003-30
AB DE 19758486 A UPAB: 20000823
In a process and assembly for the biological removal of nitrogen from waste water (4), the water is introduced to a reactor which has two zones containing a substrate material, in which the water is fed through an anoxic part of the reaction zone (2). In this zone suspended solids are retained, the chemical oxygen demand and biological oxygen demand are reduced, and nitrogen in the form of **nitrate** is reduced to elementary nitrogen. Water thus treated is then surrendered to the second reactor zone (1) in which it is aerated (8a) to produce an oxygen-rich zone in which the nitrogen compounds are oxidised to **nitrate**.
The novelty is that: (a) the reaction zones (1, 2) are separated from each other by a nozzle plate; (b) the reaction zones contain different types of support (for bacteria) having different grain size and density; and (c) the lower part of the anoxic reactor zone (2) has support material of fine grain and low density, while the aerobic zone above (1) has a support material of low density and coarse grain.
Preferably the support material is polystyrene.
USE - Process and assembly are used for the biological removal of nitrogen from waste water.
ADVANTAGE - Separation of the two zones by the nozzle plate facilitates the use of polystyrene grains of different sizes in the two zones and ensures that a biological phosphate elimination takes place as well.
Dwg.1/1
FS CPI
FA AB; GI
MC CPI: A12-S01; **A12-W11J**; **A12-W11L**; D04-A01J; D04-B07B;
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